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Sec: A4-B3

Roll no:46

```
#include <stdio.h>
```

```
#define V 5
```

```
int isSafe(int v, int graph[V][V], int color[], int c) {
```

```
    for (int i = 0; i < V; i++) {
```

```
        if (graph[v][i] == 1 && color[i] == c)
```

```
            return 0;
```

```
}
```

```
    return 1;
```

```
}
```

```
int colorGraph(int graph[V][V], int m, int color[], int v) {
```

```
    if (v == V)
```

```
        return 1;
```

```
    for (int c = 1; c <= m; c++) {
```

```
        if (isSafe(v, graph, color, c)) {
```

```
            color[v] = c;
```

```
            if (colorGraph(graph, m, color, v + 1))
```

```
                return 1;
```

```
            color[v] = 0;
```

```
}
```

```
}
```

```
return 0;
```

```
}
```

```
int main() {
    int graph1[V][V] = {
        {0, 1, 1, 0, 1},
        {1, 0, 1, 1, 0},
        {1, 1, 0, 1, 0},
        {0, 1, 1, 0, 1},
        {1, 0, 0, 1, 0}
    };
}
```

```
int graph2[V][V] = {
    {0, 1, 1, 1, 1},
    {1, 0, 1, 1, 1},
    {1, 1, 0, 1, 1},
    {1, 1, 1, 0, 1},
    {1, 1, 1, 1, 0}
};
```

```
int color[V] = {0};
int m = 3;
```

```
printf("Graph 1:\n");
if (colorGraph(graph1, m, color, 0)) {
    for (int i = 0; i < V; i++)
        printf("Vertex %d -> Color %d\n", i + 1, color[i]);
} else {
```

```

printf("No solution exists.\n");

}

for (int i = 0; i < V; i++)
    color[i] = 0;

printf("\nGraph 2:\n");
if (colorGraph(graph2, m, color, 0)) {
    for (int i = 0; i < V; i++)
        printf("Vertex %d -> Color %d\n", i + 1, color[i]);
} else {
    printf("No solution exists.\n");
}

return 0;
}

```

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
on@Manthan's-MacBook-Air:~/Desktop$ gcc pract8.c -o pract8
on@Manthan's-MacBook-Air:~/Desktop$ ./pract8
Graph 2:
Vertex 1 -> Color 1
Vertex 2 -> Color 2
Vertex 3 -> Color 3
Vertex 4 -> Color 1
Vertex 5 -> Color 2
Graph 2:
No solution exists.
on@Manthan's-MacBook-Air:~/Desktop$ 

```

GitHub:<https://github.com/ghangaremanthan908-wq/Manthan23A>